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IS 14934 (2001): Oxyfluorfen Technical [FAD 1: Pesticides and Pesticides Residue Analysis]

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भारतीय मानक

आक्सीफ्लूरफेन, तकनीकी — विशिष्टि

Indian Standard

OXYFLUORFEN TECHNICAL — SPECIFICATION

ICS 19.020, 65.100.01

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

August 2001

Price Group 1

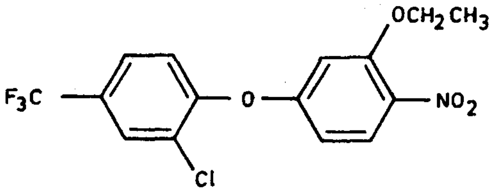
Pesticides Sectional Committee, FAD 1

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Pesticides Sectional Committee had been approved by the Food and Agriculture Division Council.

Oxyfluorfen is a herbicide used in the formulations meant for agricultural purpose. It is a selective contact herbicide.

Oxyfluorfene is accepted common name by the International Organization for Standardization for 2-chloro-trifluoro-P-tolyl-3 ethoxy-4-nitrophenyl ether. The empirical structural formula and the molecular weight of oxyfluorfen are as follows:

Empirical Formula	*Structural Formula*	*Molecular Weight*
$C_{15}H_{11}C_{1}F_{3}NO_{4}$		361.7

In the preparation of this standard due consideration has been given to the provisions of *Insecticides Act*, 1968 and the rules framed thereunder. However, this standard is subjected to restrictions imposed under the Act and Rules wherever applicable.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

OXYFLUORFEN TECHNICAL — SPECIFICATION

1 SCOPE

This standard prescribes the requirements and the methods of sampling and test for oxyfluorfen technical.

2 REFERENCES

The following Indian Standards contain provisions which through reference in this text, constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	*Title*
1070 : 1992	Reagent grade water (*third revision*)
6940 : 1982	Methods of test for pesticides and their formulations (*first revision*)
8190 (Part 2) : 1988	Requirements for packing of pesticides : Part 2 Liquid pesticides (*second revision*)
10946 : 1996	Methods of sampling for technical grade pesticides (*first revision*)

3 REQUIREMENTS

3.1 Description

The material shall be in the form of brown viscous semi solid mass.

3.2 The material shall also comply with the requirements given in Table 1.

Table 1 Requirements for Oxyfluorfen Technical

Sl No.	Characteristic	Requirement	Method of Test, Ref to	
			Annex of This Standard	Cl No. of IS 6940
(1)	(2)	(3)	(4)	(5)
i)	Oxyfluorfen content, percent by mass, *Min*	70.00	A	—
ii)	Moisture content, percent by mass, *Max*	0.50	—	4.1
iii)	Acidity, percent by mass H_2SO_4, *Max*	1.50	—	13.5.4

4 PACKING

The material shall be packed in mild steel drum suitably lacquered with epoxy resin from inside. The general requirements as given in IS 8190 (Part 2) shall also be followed.

5 MARKING

5.1 The container shall bear legibly and indelibly the following information:

a) Name of the material;

b) Name and address of the manufacturer;

c) Date of manufacture;

d) Date of expiry;

e) Batch number;

f) Oxfluorfen content percent (*m/m*);

g) Any other information required under the *Insecticides Act*, 1968 and Rules framed thereunder; and *Standards of Weights and Measures (Packaged Commodities) Rules*, 1977.

5.2 BIS Certification Marking

The product may also be marked with the Standard Mark.

5.2.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

6 SAMPLING

Representative examples of the material shall be drawn as prescribed in IS 10627.

7 TESTS

7.1 Tests shall be carried out by the appropriate methods referred to in col 4 and 5 of Table 1.

7.2 Quality of Reagents

Unless specified otherwise, pure chemicals and distilled water (*see* IS 1070) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affects the results of analysis.

ANNEX A

[*Table* 1, *Sl No.* (i)]

DETERMINATION OF OXYFLUORFEN CONTENT

A-1 PRINCIPLE

Oxyfluorfen sample and internal standard are weighed accurately in a measuring flask and dissolved in a solvent. A sample/internal standard solution is then injected and estimated gas chromatographically using flame ionization detector (FID).

A-2 APPARATUS

A-2.1 Gas Chromatograph (GLC)

The instrument is equipped with a flame ionization detector and may be coupled to printer-plotter-cum-integrator. The operative parameters are suggested below, which can be changed, in any other instrument employed, provided standardization is done.

A-2.2 Column

SS, 360 cm length and 3.2 mm inner diameter packed with 3 percent Dexil 300 on chromosorb WHP (80-100 mesh).

A-2.3 Temperature

Injector temperature	: 250°C
Detector temperature	: 300°C
Column oven (isothermal)	: 240°C

A-2.4 Gases

Carrier gas	: 30 ml/min

A-3 REAGENTS

A-3.1 Acetone (AR Grade)

A-3.2 Xylene (AR Grade)

A-3.3 Internal Standard : Triphenyl Methane or Equivalent

A-3.4 Standard Oxyfluorfen — of known purity.

A-4 PROCEDURE

A-4.1 Prepare Acetone:Xylene as solvent mixture in the ratio of 25:75.

A-4.2 Preparation of Internal Standard Solution — Weigh accurately about 3.0 g of internal standard in a 100-ml volumetric flask, dissolve and make up the volume with Acetone : Xylene mixture so as to make 30 mg/ml solution of internal standard.

A-5 PROCEDURE

A-5.1 Preparation of Standard Oxyfluorfen Solution

A-5.1.1 Warm the standard Technical, Oxyfluorfen to 70°C on a waterbath till the material is in the form of a homogeneous mass (to dissolve impurities, if any) and use this material for immediate weighing. Formulation is to be weighed without heating.

A-5.1.2 Weigh Oxyfluorfen (standard of known purity) accurately about 0.070 g (equivalent 0.050 g Oxyfluorfen content) in 10-ml volumetric flask, add 1.0 ml internal standard solution. Shake it vigorously to dissolve it and dilute it to mark with Acetone : Xylene mixture. This will give standard Oxyfluorfen solution.

A-5.2 Preparation of Sample Solution

Weigh accurately a quantity of sample equivalent to 50 mg Oxyfluorfen into a 10-ml volumetric flask, add 1.0 ml internal standard solution with the help of a 1-ml pipette and dilute to mark using Acetone:Xylene mixture. This will give us respective Oxyfluorfen sample solution.

A-6 ESTIMATION

Inject 2 µl of standard solution in GC and find response factor (RF) value. Inject two to three times to get consistent results.

where

RF (sample solution)

$$= \frac{\text{Area of sample peak}}{\text{Area of internal standard peak}}; \text{ and}$$

RF (standard solution)

$$= \frac{\text{Area of standard peak}}{\text{Area of internal standard peak}}$$

$$\%\ \text{Oxyfluorfen} = \frac{\text{RF Sample solution}}{\text{RF Standard solution}} \times \frac{\text{M Standard}}{\text{M Sample}} \times \%\ \text{purity of standard solution}$$

where

M Standard = mass of technical standard, and

M Sample = mass of sample standard.

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